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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/579,381

02/06/2007

Guy Cloutier

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EXAMINER

FITZPATRICK, ATIBA O

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

07/06/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/579,381	Applicant(s) CLOUTIER ET AL.	
	Examiner ATIBA O. FITZPATRICK	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-36 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-23 and 34-36 are, drawn to “concurrently propagating the initial interfaces corresponding to the regions to segment and thereby estimating the boundaries of the layers of the”, classified in class 382, subclass 173.
- II. Claims 30-31, drawn to “providing IVUS image data of the pulsating multi-layer blood vessel; determining initial interfaces corresponding to the regions of the IVUS image data to segment; dividing wall pulsations of said IVUS image data into a discrete number of phases with adjustable pulsation phase labels; assigning the pulsation phase labels to 2D IVUS frames of the IVUS image data; dividing the IVUS image data according to said phases”, classified in class 382, subclass 130.
- III. Claim 32, drawn to “(i) simultaneously computing a speed function for the propagation of the initial interfaces based on a probability function describing at least one characteristic of the image elements, and (ii) mapping a time function of the propagating initial interfaces”, classified in class 382, subclass 107.
- IV. Claim 33, drawn to “a catheter including a transducer for providing image data, the image data representing a plurality or image elements”, classified in class 600, subclass 433.

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The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination I has separate utility such as “concurrently propagating the initial interfaces corresponding to the regions to segment and thereby estimating the boundaries of the layers of the”. Subcombination II has separate utility such as “providing IVUS image data of the pulsating multi-layer blood vessel; determining initial interfaces corresponding to the regions of the IVUS image data to segment; dividing wall pulsations of said IVUS image data into a discrete number of phases with adjustable pulsation phase labels; assigning the pulsation phase labels to 2D IVUS frames of the IVUS image data; dividing the IVUS image data according to said phases”. See MPEP § 806.05(d).

Inventions I and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination I has separate utility such as “concurrently propagating the initial interfaces corresponding to the regions to segment and thereby estimating the boundaries of the layers of the”. Subcombination III has separate utility such as “(i) simultaneously computing a speed function for the propagation of the initial interfaces based on a probability function describing at least

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one characteristic of the image elements, and (ii) mapping a time function of the propagating initial interfaces”. See MPEP § 806.05(d).

Inventions I and IV are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination I has separate utility such as “concurrently propagating the initial interfaces corresponding to the regions to segment and thereby estimating the boundaries of the layers of the”. Subcombination IV has separate utility such as “a catheter including a transducer for providing image data, the image data representing a plurality or image elements”. See MPEP § 806.05(d).

Inventions II and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination II has separate utility such as “providing IVUS image data of the pulsating multi-layer blood vessel; determining initial interfaces corresponding to the regions of the IVUS image data to segment; dividing wall pulsations of said IVUS image data into a discrete number of phases with adjustable pulsation phase labels; assigning the pulsation phase labels to 2D IVUS frames of the IVUS image data; dividing the IVUS image data according to said phases”. Subcombination III has separate utility such as “(i) simultaneously computing a speed function for the propagation of the initial interfaces based on a probability function

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describing at least one characteristic of the image elements, and (ii) mapping a time function of the propagating initial interfaces”. See MPEP § 806.05(d).

Inventions II and IV are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination II has separate utility such as “providing IVUS image data of the pulsating multi-layer blood vessel; determining initial interfaces corresponding to the regions of the IVUS image data to segment; dividing wall pulsations of said IVUS image data into a discrete number of phases with adjustable pulsation phase labels; assigning the pulsation phase labels to 2D IVUS frames of the IVUS image data; dividing the IVUS image data according to said phases”. Subcombination IV has separate utility such as “a catheter including a transducer for providing image data, the image data representing a plurality or image elements”. See MPEP § 806.05(d).

Inventions III and IV are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination III has separate utility such as “(i) simultaneously computing a speed function for the propagation of the initial interfaces based on a probability function describing at least one characteristic of the image elements, and (ii) mapping a time function of the propagating initial interfaces”. Subcombination IV has separate utility such as “a catheter including a transducer for

providing image data, the image data representing a plurality or image elements". See MPEP § 806.05(d).

The examiner has required restriction between subcombinations usable together. Where applicant elects a subcombination and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

- (a) the inventions have acquired a separate status in the art in view of their different classification;
- (b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;
- (c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);

(d) the prior art applicable to one invention would not likely be applicable to another invention;

(e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable

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over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ATIBA O. FITZPATRICK whose telephone number is (571)270-5255. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir A. Ahmed can be reached on (571)272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/A. O. F./
Examiner, Art Unit 2624

/Samir A. Ahmed/
Supervisory Patent Examiner, Art Unit 2624